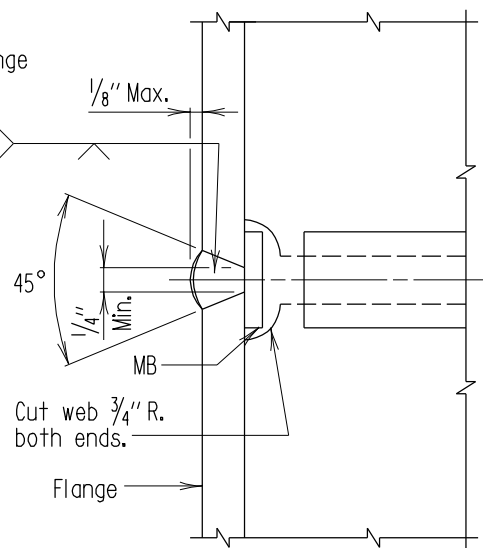
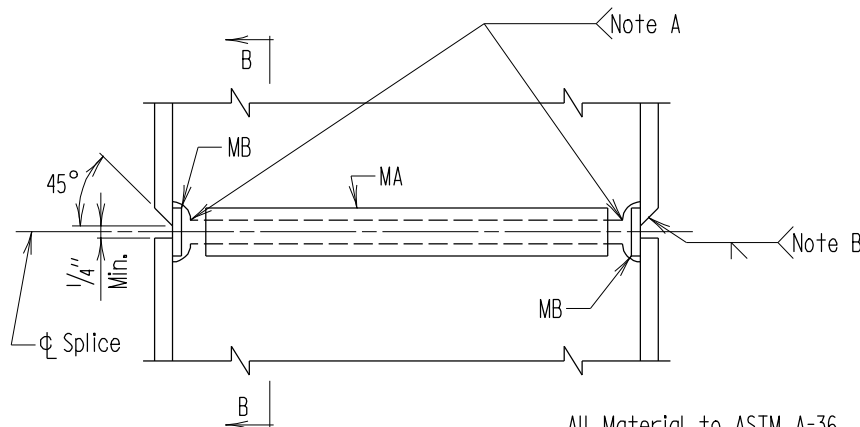


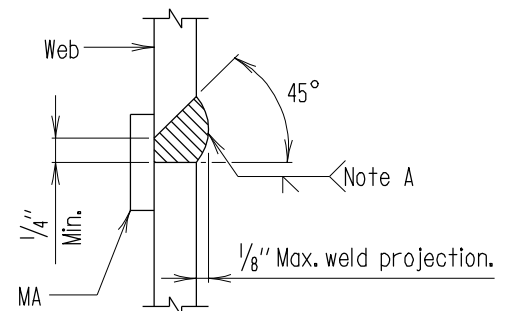
PLAN
Scale: None



SECTION C-C
ALTERNATE FLANGE WELD
Scale: 6" = 1'-0"



SECTION A-A
Scale: None



SECTION B-B
Scale: 6" = 1'-0"

All Material to ASTM A-36.

Material Required:

1 Bar MA 1" x 3/16" x 7 1/4"	1 Bar MA 1" x 3/16" x 9 3/8"	1 Bar MA 1" x 3/16" x 1'-0"
For HP 10 Piles 2 Bars MB 1" x 3/16" x 10"	For HP 12 Piles 2 Bars MB 1" x 3/16" x 1'-0"	For HP 14 Piles 2 Bars MB 1" x 3/16" x 1'-2 1/2"
2 Bars MC 3" x 3/8" x 11"	2 Bars MC 3" x 3/8" x 1'-1"	2 Bars MC 3" x 3/8" x 1'-3"

Note A:

End of weld to be smooth and flush with web cut, 1/4" min. effective throat.

Note B:

Bar MC to be tack welded to flange at splice to back up end of flange weld, remove MC after weld is completed. End of weld must be smooth and flush with edge of flange. Grind weld smooth with edge of flange if pile is unsupported in weld area such as: in air, water, or soft mud, 1/4" min. effective throat.

Note C:

Let welds cool to air temperature before driving piles.

Note D:

No pile splicing to be allowed on any portion of pile that is to remain exposed or to be above finished groundline in completed structure.

APPROVAL	
<i>L. S. Friedman</i>	DIRECTOR
	OFFICE OF STRUCTURES
DATE: 6/30/75	
REVISIONS	
SHA	FHWA
9-26-83	6-8-90
4-10-86	6-8-90
FHWA APPROVAL	2-19-92
DATE: 8-24-76	1-22-01

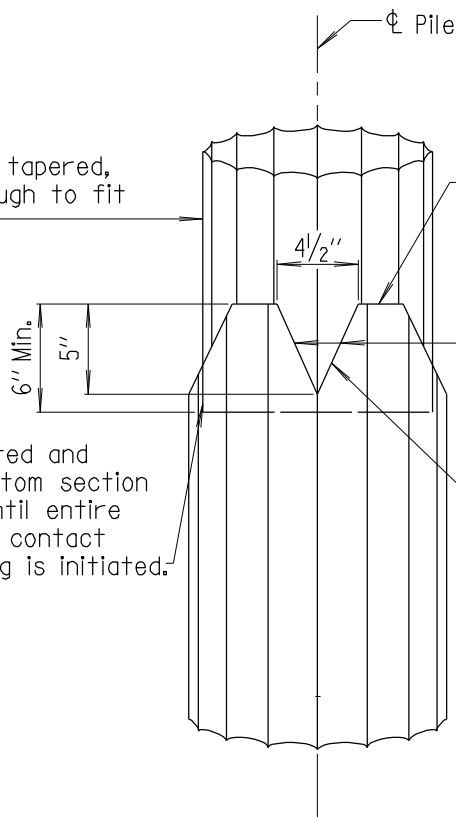
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

STEEL H PILE SPLICE DETAILS

STANDARD NO. BR-FD(0.01)-75-15

SHEET 1 OF 1

If "male end" is not factory tapered, it shall be tapered just enough to fit into lower section.



Continuous fillet weld, minimum size equal to thickness of pile shell.

Burn four equally spaced slots in the lower section before inserting extension.

After pile is aligned, tack weld at all four slots prior to commencing full weld operations.

Top extension shall be inserted and driven if necessary into bottom section (after "V" cutting is done) until entire area of weldment is in tight contact before alignment tack welding is initiated.

ELEVATION

Scale: None

Note:

No pile splicing to be allowed on any portion of pile that is to remain exposed in completed structure.

APPROVAL	
<i>L.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES	
DATE: 6/20/75	
REVISIONS	
SHA	FHWA
.	.
.	.
.	.

FHWA APPROVAL
DATE: 8-24-76

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SPLICE FOR CAST-IN-PLACE
CONCRETE PILE SHELL

STANDARD NO. BR-FD(0.02)-75-16

SHEET 1 OF 1

Limits of temporary fill during compaction of preliminary embankment. Temporary fill within these limits to be removed to finished slope line and used in completing preliminary embankment after abutment is completed. Removal of this overburden and placing of same behind abutments will be measured and paid for as Class 2 Excavation.

* Proposed finished slope 2:1 unless otherwise designated.

** Slope ratio depends upon fill height.

Finished Groundline

Finished slope or top of proposed slope protection.

Bottom of subgrade for roadway pavement.

Proposed abutment

8'-0"

See Note 'A'

Limits of completed preliminary embankment

150' (Min.) for approaches to bridges; unless cut is encountered sooner (measured parallel to ϕ of roadway).

Proposed roadway surface

Slope to drain

Limit of preliminary embankment prior to driving piles for abutments.

25'

Existing Groundline

Slope top of preliminary embankment to drain to ϕ of embankment (i.e. midway between outside shoulders) and from abutment to rear of fill along ϕ , to carry drainage down rear embankment slope to sediment trap or other erosion control device.

Temporarily seed and mulch front and back slopes to original groundline. Permanent seed and mulch on side slopes. Install 4'-0" wide soil stabilization matting in top swale to original groundline.

ELEVATION

Scale: None

Note A:

No boulders, rocks, or stumps in this area of fill and all stumps, surface boulders and rocks to be removed from existing ground within these limits.

APPROVAL	
<i>L. S. Friedman</i>	DIRECTOR
OFFICE OF STRUCTURES	
DATE: 11/8/76	
REVISIONS	
SHA	FHWA
11-9-76	11-9-76
4-28-94	.
3-20-01	.
7-24-01	.

FHWA APPROVAL
DATE: 11-9-76

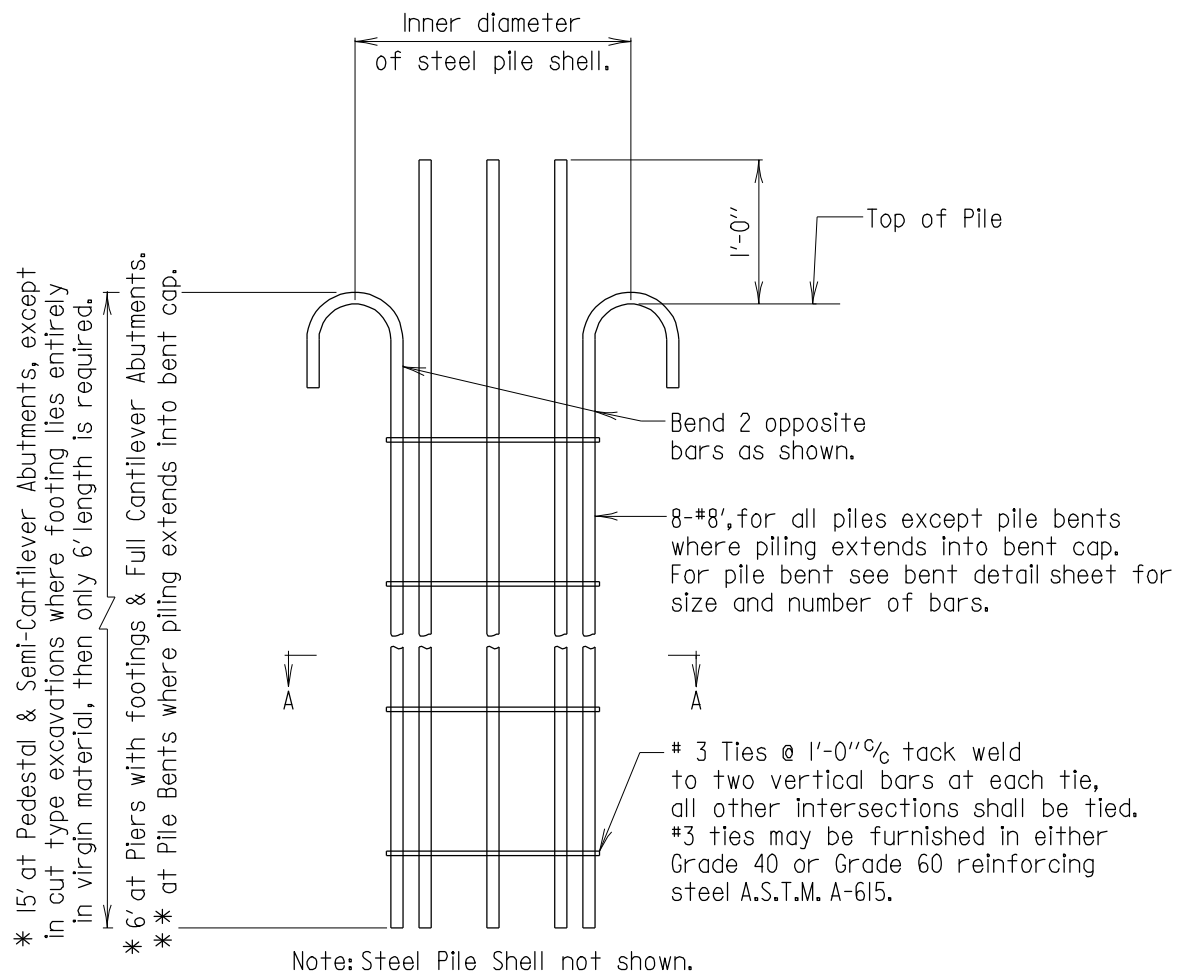
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

PRELIMINARY EMBANKMENT FOR PEDESTAL
TYPE BRIDGE ABUTMENTS ON PILES

STANDARD NO. BR-FD(0.10)-75-17

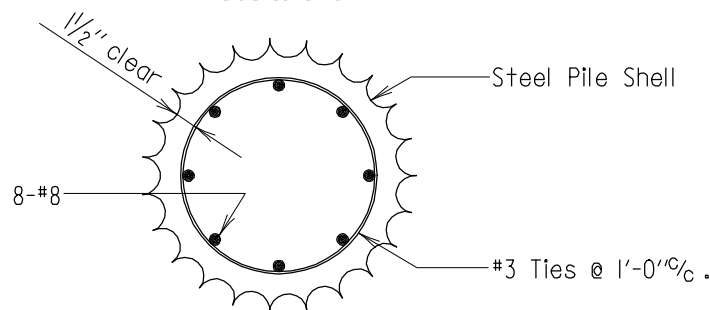
SHEET 1 OF 1

BRIDGE-FOUNDATION



ELEVATION

Scale:None



SECTION A-A

Scale:None

Note:

- * Unless otherwise indicated on substructure contract drawing.
- ** Full height of pile above finished groundline plus 6' unless otherwise indicated on substructure contract drawings.
- Unless otherwise indicated on other Contract Plans or in the Special Provisions the Steel Pile Shell shall be #5 gauge. This will apply to pile shells with or without deformations.
- Cage required for all pile shells with or without deformations.

APPROVAL	
<i>R. S. Friedman</i>	DIRECTOR
OFFICE OF STRUCTURES	
DATE: 8/9/79	
REVISIONS	
SHA	FHWA
6-15-84	11-8-84
6-16-92	.
10-27-92	.
1-22-01	.

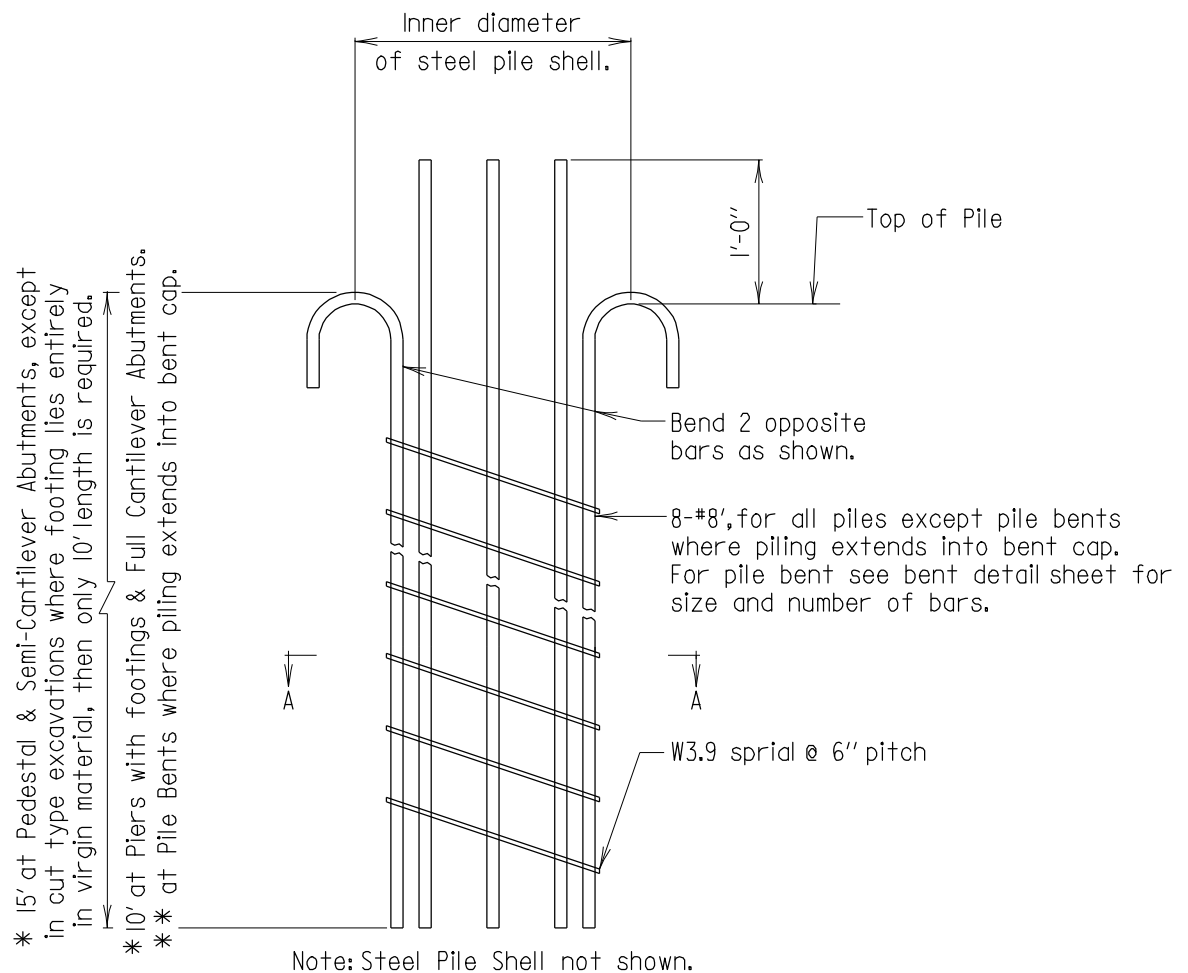
FHWA APPROVAL
DATE: 12-19-79

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

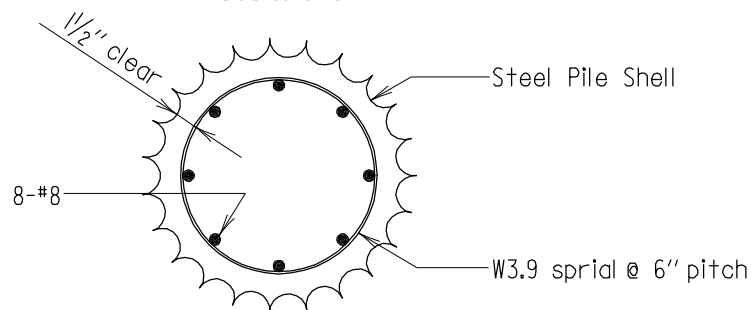
DETAILS
FOR CAST-IN-PLACE CONCRETE PILES

STANDARD NO. BR-FD(0.03)-79-81

SHEET 1 OF 1



ELEVATION
Scale:None



SECTION A-A
Scale:None

Note:

- 1.* Unless otherwise indicated on substructure contract drawing.
- 2.** Full height of pile above finished groundline plus 10' unless otherwise indicated on substructure contract drawings.
3. Unless otherwise indicated on other Contract Plans or in the Special Provisions the Steel Pile Shell shall be a minimum #5 gauge. This will apply to pile shells with or without deformations.
4. Cage required for all pile shells with or without deformations.
5. All materials and dimensions shown are minimums. Engineer shall design.

FOR OFFICE USE ONLY

APPROVAL	
<i>R. S. Friedman</i>	DIRECTOR
OFFICE OF STRUCTURES	
DATE: 8/9/79	
REVISIONS	
SHA	FHWA
6-16-92	.
10-27-92	.
1-22-01	.
10-9-07	.

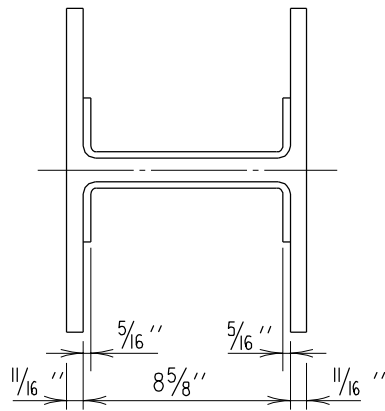
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES



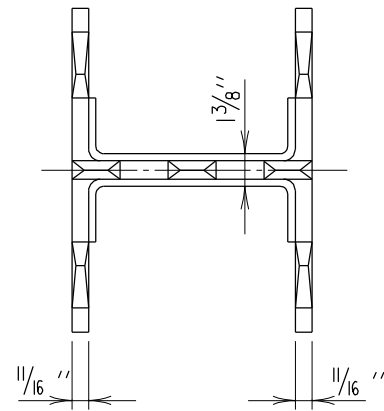
DETAILS
FOR CAST-IN-PLACE CONCRETE PILES

STANDARD NO. BR-FD(0.03)-79-8(L)

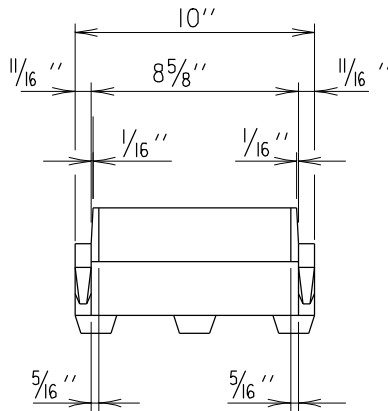
SHEET 1 OF 1



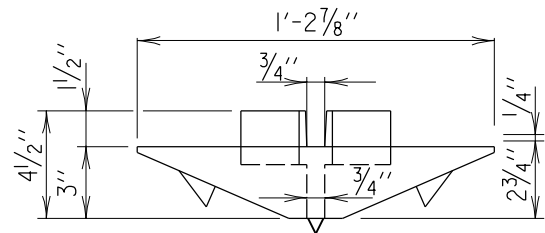
PLAN
Scale: $1\frac{1}{2}'' = 1'-0''$



PLAN
Scale: $1\frac{1}{2}'' = 1'-0''$



ELEVATION
Scale: $1\frac{1}{2}'' = 1'-0''$



SIDE VIEW
Scale: $1\frac{1}{2}'' = 1'-0''$

Size of Pile	Size of 45 Bevel	Size of Groove Weld
10 x 42	$\frac{1}{4}$	$\frac{5}{16}$
10 x 57	$\frac{1}{4}$	$\frac{5}{16}$

Note:

- Material: Cast Steel A.S.T.M. A27 65/35.
All fillets $\frac{3}{8}''$.
- Point to be welded to pile with a continuous single bevel groove weld along outside face of flange. Exterior face of flange to be flame cut beveled at 45° prior to welding.
- For each shipment of points a foundry certificate verifying material meets the Specifications is required.

APPROVAL	
<i>LS Friedman</i> DIRECTOR	OFFICE OF STRUCTURES
DATE: 10/17/79	
REVISIONS	
SHA	FHWA
12-13-79	1-29-80
.	.
.	.

FHWA APPROVAL
DATE: 1-16-80

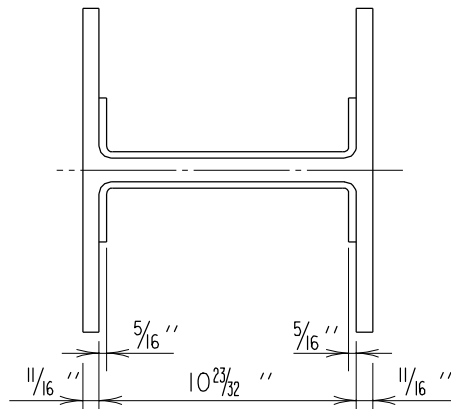
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

TOOTHED PILE POINT FOR 10" H PILE

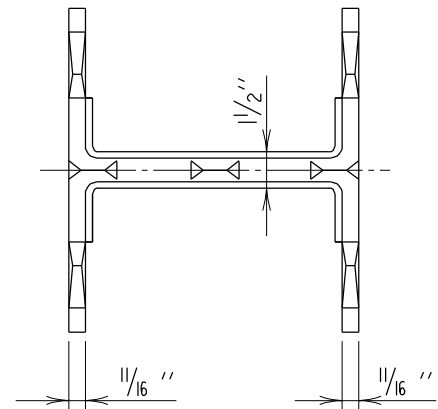
STANDARD NO. BR-FD(0.07)-79-87

SHEET 1 OF 1

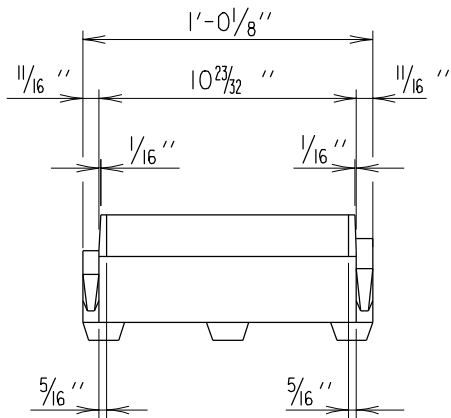
BRIDGE - FOUNDATION



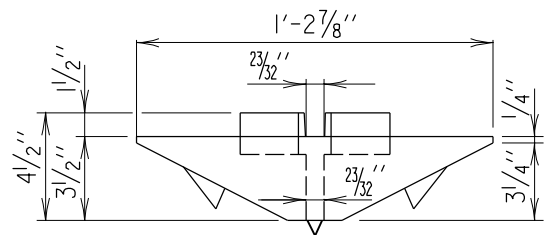
PLAN
Scale: $1\frac{1}{2}'' = 1'-0''$



PLAN
Scale: $1\frac{1}{2}'' = 1'-0''$



ELEVATION
Scale: $1\frac{1}{2}'' = 1'-0''$



SIDE VIEW
Scale: $1\frac{1}{2}'' = 1'-0''$

Size of Pile	Size of 45 Bevel	Size of Groove Weld
12 x 53	$\frac{1}{4}$	$\frac{5}{16}$
12 x 74	$\frac{5}{16}$	$\frac{5}{16}$

Note:

- Material: Cast Steel A27 65/35.
All fillets $\frac{3}{8}''$.
- Point to be welded to pile with a continuous single bevel groove weld along outside face of flange. Exterior face of flange to be flame cut beveled at 45° prior to welding.
- For each shipment of points a foundry certificate verifying material meets the Specifications is required.

APPROVAL	
<i>L. S. Friedman</i> DIRECTOR	OFFICE OF STRUCTURES
DATE: 10/17/79	
REVISIONS	
SHA	FHWA
12-13-79	1-29-80
4-28-94	.
FHWA APPROVAL	
DATE: 1-16-80	

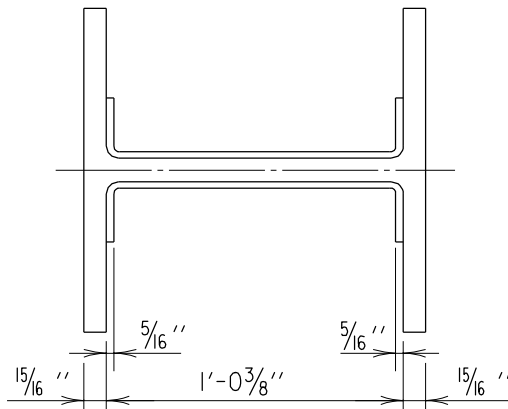
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

TOOTHED PILE POINT FOR 12" H PILE

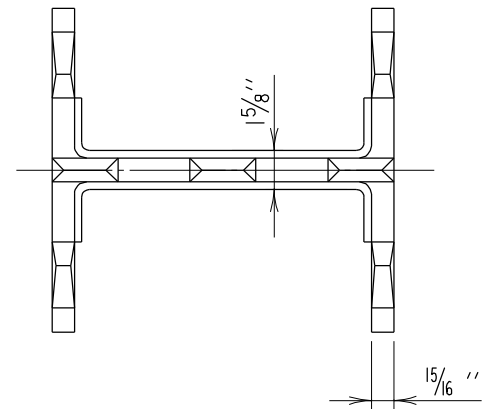
STANDARD NO. BR-FD(0.08)-79-88

SHEET 1 OF 1

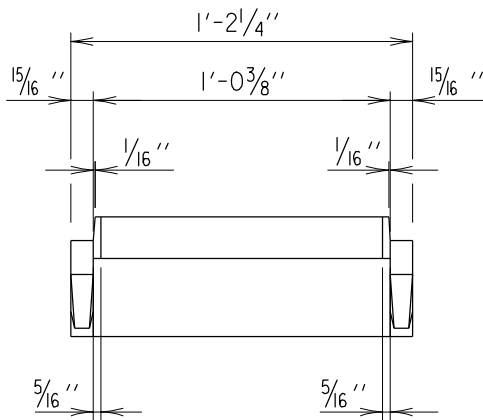
BRIDGE - FOUNDATION



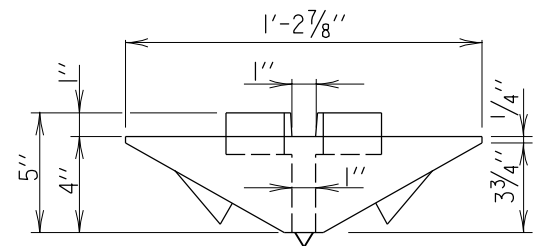
PLAN
Scale: $1\frac{1}{2}'' = 1'-0''$



PLAN
Scale: $1\frac{1}{2}'' = 1'-0''$



ELEVATION
Scale: $1\frac{1}{2}'' = 1'-0''$



SIDE VIEW
Scale: $1\frac{1}{2}'' = 1'-0''$

Size of Pile	Size of 45 Bevel	Size of Groove Weld
14 x 73	$\frac{1}{4}$	$\frac{5}{16}$
14 x 89	$\frac{5}{16}$	$\frac{5}{16}$
14 x 102		
14 x 117		$\frac{7}{16}$

Note:

- Material: Cast Steel A.S.T.M. A27 65/35.
All fillets $\frac{3}{8}''$.
- Point to be welded to pile with a continuous single bevel groove weld along outside face of flange. Exterior face of flange to be flame cut beveled at 45° prior to welding.
- For each shipment of points a foundry certificate verifying material meets the Specifications is required.

APPROVAL	
<i>L. S. Fisher</i> DIRECTOR	OFFICE OF STRUCTURES
DATE: 11/14/79	
REVISIONS	
SHA	FHWA
12-13-79	1-29-80
.	.
.	.

FHWA APPROVAL
DATE: 1-16-80

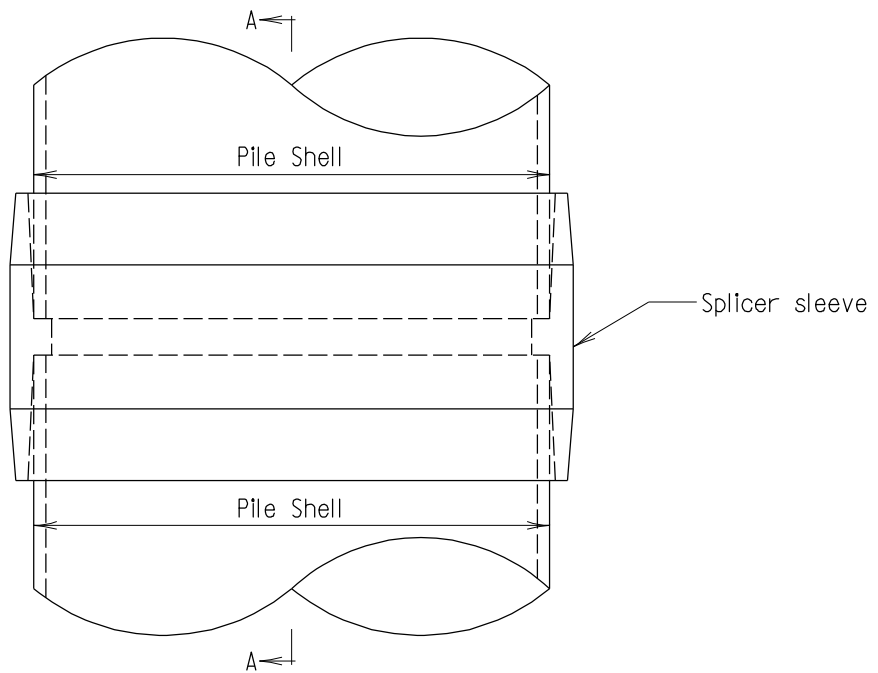
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

TOOTHED PILE POINT FOR 14" H PILE

STANDARD NO. BR-FD(0.09)-79-89

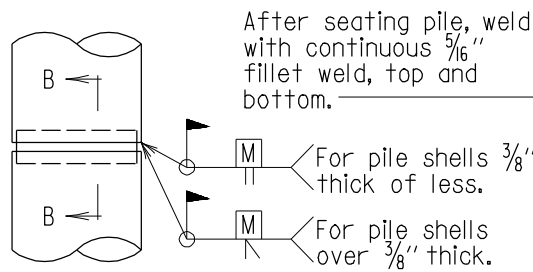
SHEET 1 OF 1

BRIDGE - FOUNDATION



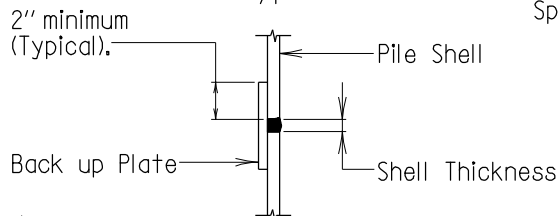
ELEVATION OF SPLICE
(USING SPLICER SLEEVE)

Scale: 3" = 1'-0"



ELEVATION OF SPLICE
(USING ALL WELDED ALTERNATE)

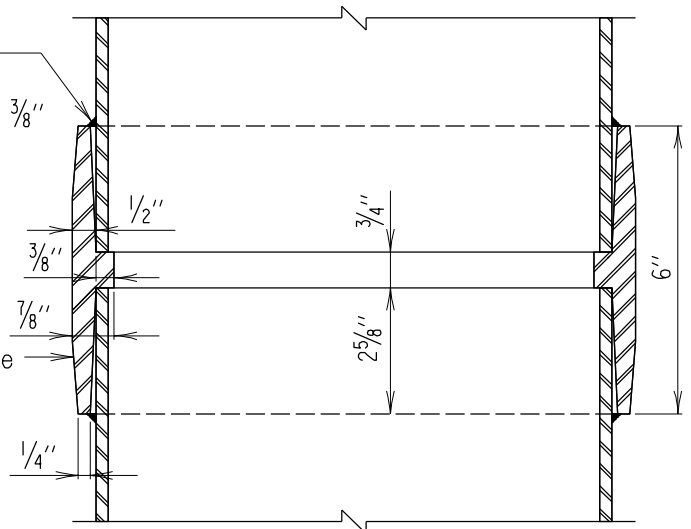
Scale: 3/4" = 1'-0"



Note:
Back-up plate to be cut from same pile size as is being spliced. Cut and bend to fit inside diameter of pile.

SECTION B-B

Scale: None



SECTION A-A

Scale: 3" = 1'-0"

Notes:

1. No pile splicing to be allowed on any portion of pile that is to remain exposed in completed structure.
2. Splicer sleeve material shall be steel conforming to ASTM A-36.
3. Contractor has the option of using either the "Splicer Sleeve" or "All Welded" alternates.

APPROVAL	
<i>E. S. Friedman</i>	DIRECTOR
OFFICE OF STRUCTURES	
DATE: 8/29/83	
REVISIONS	
SHA	FHWA
6-8-84	11-8-84
11-14-85	6-8-90
1-22-01	

FHWA APPROVAL
DATE: 11-4-84

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SPLICE FOR CAST-IN-PLACE
CONCRETE PIPE PILE SHELL

STANDARD NO. BR-FD(0.11)-83-152

SHEET 1 OF 1

Limits of temporary fill during compaction of preliminary embankment. Temporary fill within these limits to be removed to finished slope line and used in completing preliminary embankment after abutment is completed. Removal of this overburden and placing of same behind abutments will be measured and paid for as Class 2 Excavation.

Finished groundline outside of wing wall.

Area to be excavated prior to driving piles (shown double hatched) to be paid for as Class 3 Excavation.

Bottom of subgrade inside of wing wall.

Front face of abutment footing.

Limit of preliminary embankment prior to driving piles for abutment and wings.

8'-0"

1'-6"

Rear of abutment footing.

Abutment stem

Bottom of subgrade roadway pavement.

End of wing wall.

Limits of completed preliminary embankment.

150' (Min.) for approaches to bridges; unless cut is encountered sooner (measured parallel to ϕ of roadway).

Proposed roadway surface.

2

Slope to drain

Limit of preliminary embankments prior to driving piles for abutments and wings.

Slope as steep as ground will allow.

25'

See Note 'A'

Existing groundline

Finished slope or top of proposed slope protection.

Finished groundline

* Proposed finished slope 2:1 unless otherwise designated.

* Slope ratio depends upon fill height.

Slope top of preliminary embankment to drain to ϕ of embankment (i.e. midway between outside shoulders) and from abutment to rear of fill along ϕ , to carry drainage down rear embankment slope to sediment trap or other erosion control device.
Temporarily seed and mulch front and back slopes to original groundline. Permanent seed and mulch on side slopes. Install 4'-0" wide soil stabilization matting in top swale to original groundline.

ELEVATION

Scale: None

Note A:
No boulders, rocks, or stumps in this area of fill and all stumps, surface boulders and rocks to be removed from existing ground within these limits.

APPROVAL	
<i>E.S. Friedman</i>	DIRECTOR
OFFICE OF STRUCTURES	
DATE: 9/6/85	
REVISIONS	
SHA	FHWA
6-23-87	6-8-90
4-27-94	.
3-20-01	.
7-24-01	.

FHWA APPROVAL
DATE: 6-8-90

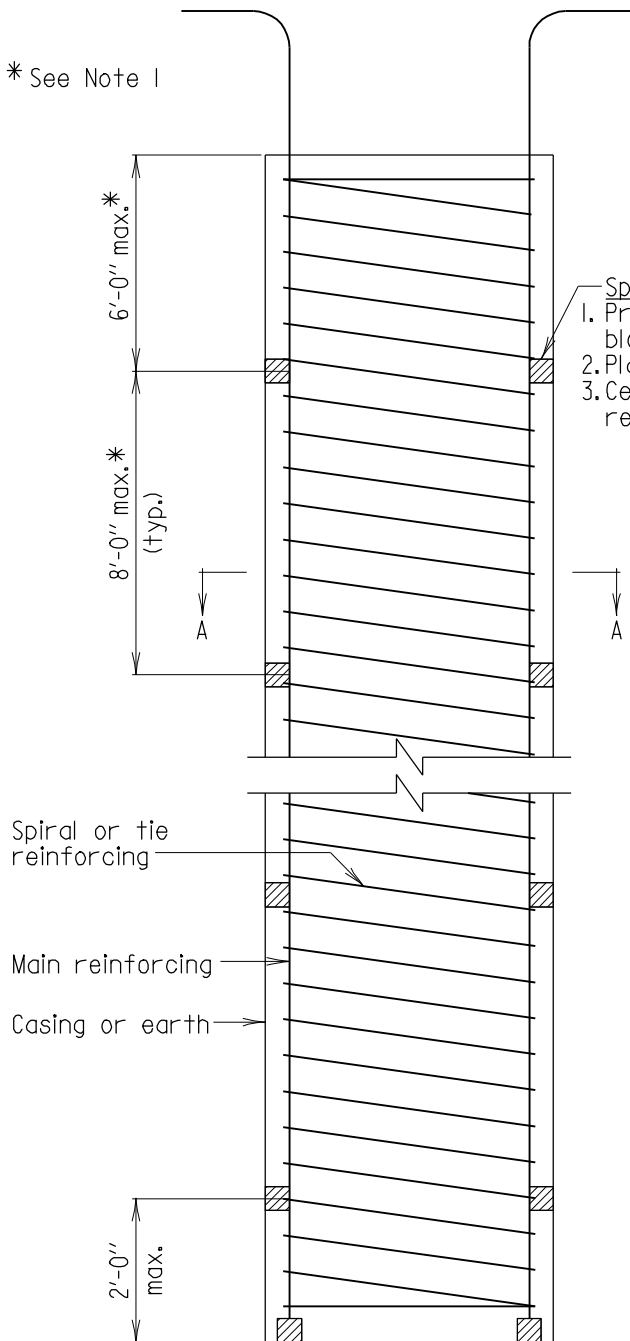
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

PRELIMINARY EMBANKMENT FOR SEMI-CANTILEVER TYPE
ABUTMENTS ON PILES WITH STEPPED WING WALL FOOTERS

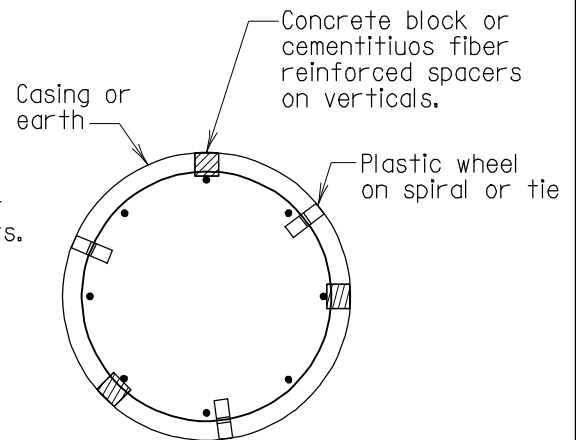
STANDARD NO. BR-FD(0.12)-85-174

SHEET 1 OF 1

* See Note 1



Spacer types:
1. Precast concrete block
2. Plastic wheel
3. Cementitious fiber reinforced spacers.



SECTION A-A

Scale: $\frac{3}{8}'' = 1'-0''$

PILE OR CAISSON

Scale: $\frac{3}{8}'' = 1'-0''$

Notes:

1. The Contractor has the option of using any of the spacers shown for the reinforcement cage. The spacing of the spacers for proprietary items shall be as recommended by the manufacturer.
2. The pitch of spiral reinforcement must be considered for some wheel type spacers.
3. Concrete spacer blocks to be tied to main reinforcing with a double tie of #16 tie wire or equivalent.
4. For size and number of main reinforcing steel and size of spiral or tie reinforcing steel see other details elsewhere.
5. Use 3 spacers per horizontal plane for caissons less than 36" in diameter. Use 4 spacers per horizontal plane for caissons 36" in diameter and greater or as recommended by the manufacturer of the proprietary items.

APPROVAL

L. S. Friedman DIRECTOR
OFFICE OF STRUCTURES

DATE: 11/14/95

REVISIONS

SHA	FHWA
8-7-98	.
.	.

FHWA APPROVAL

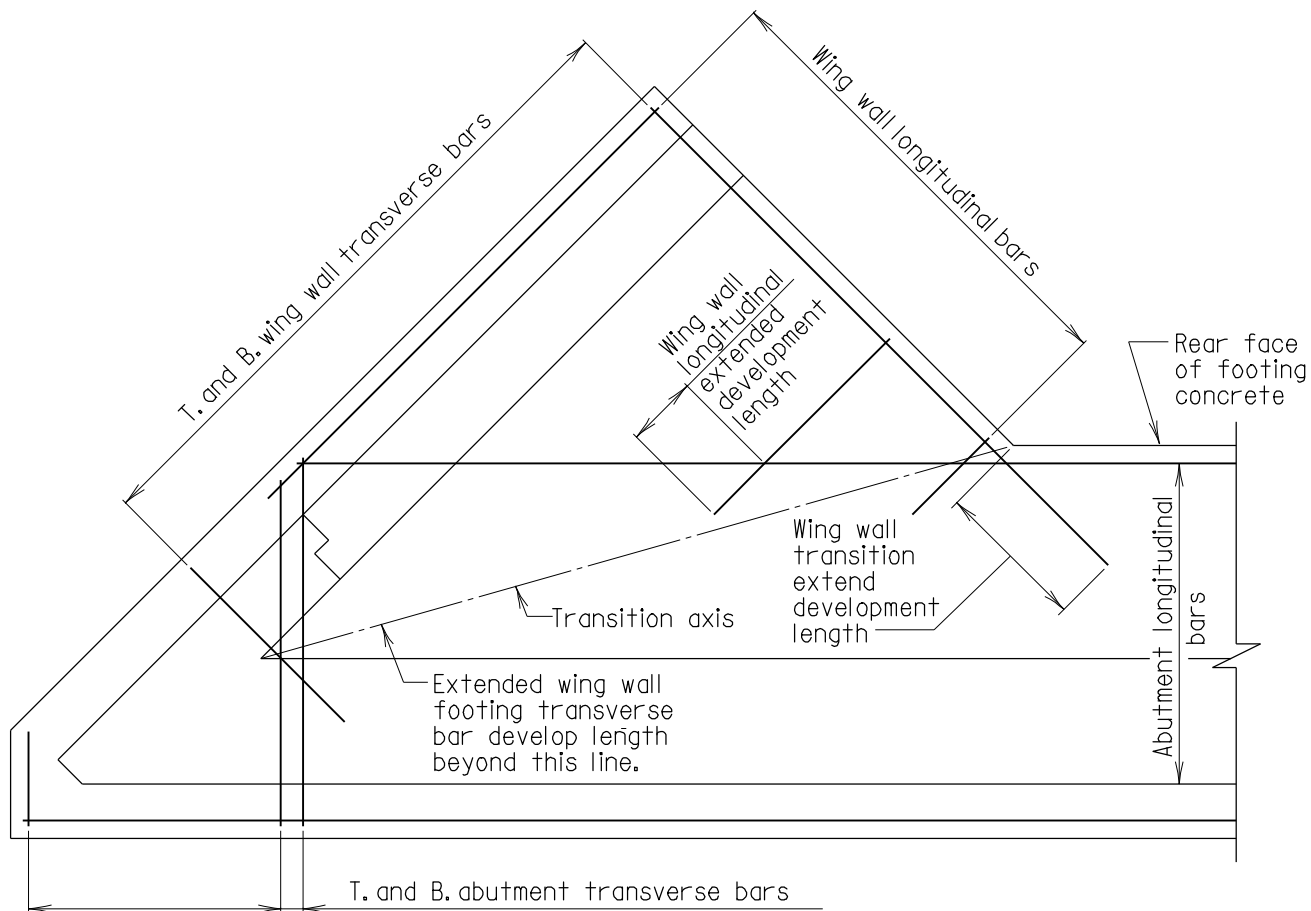
DATE: .

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

CAISSON/PILE REBAR CAGE
CLEARANCE SPACING DEVICES

STANDARD NO. BR-FD(0.13)-95-310

SHEET 1 OF 1



ACUTE CORNER

Scale: $\frac{3}{8}" = 1'-0"$

FOR OFFICE USE ONLY

APPROVAL	
<i>E.S. Friedman</i>	DIRECTOR
OFFICE OF STRUCTURES	
DATE: 11/17/97	
REVISIONS	
SHA	FHWA

FHWA APPROVAL
DATE:

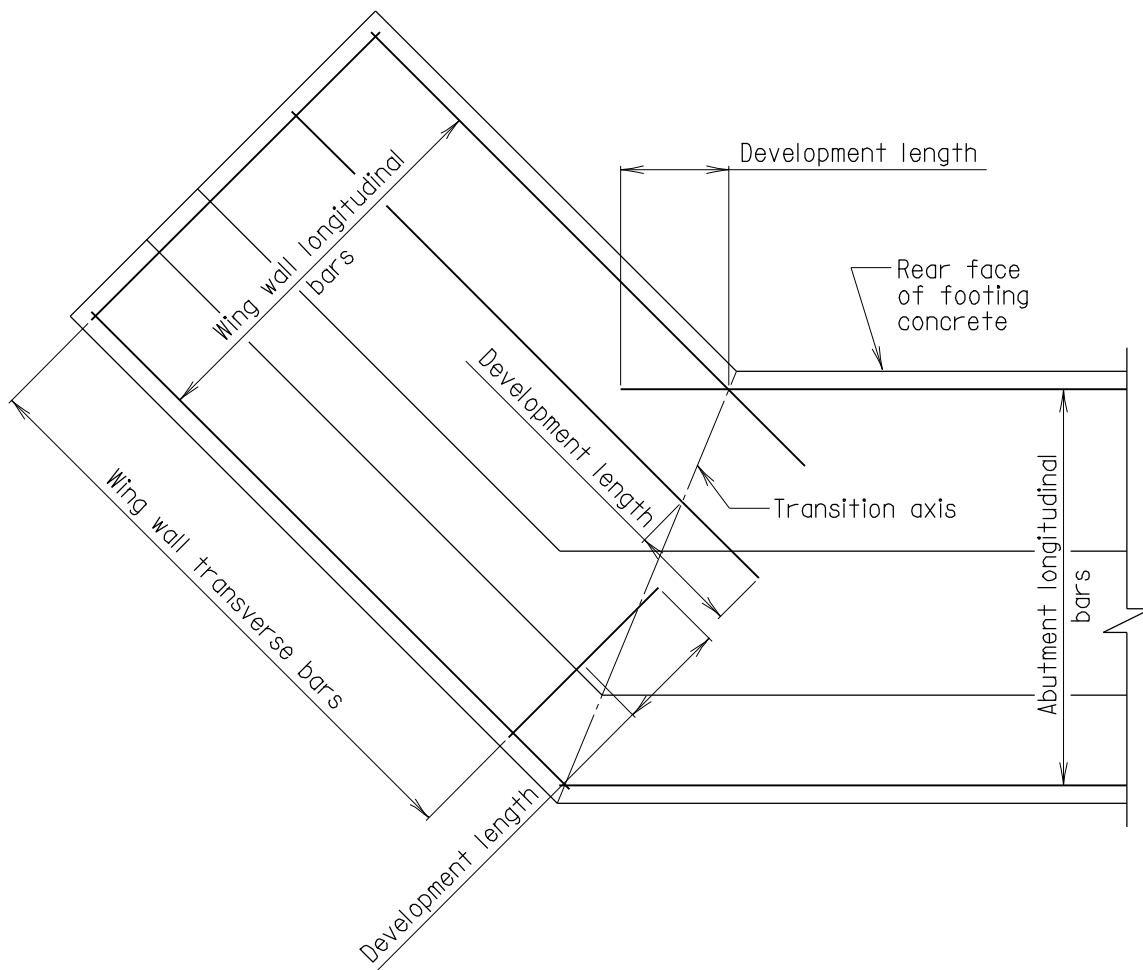
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SKewed ABUTMENT AND WING WALL
FOOTING INTERSECTION

STANDARD NO. BR-FD(0.14)-97-322

SHEET 1 OF 2

BRIDGE - FOUNDATION



OBTUSE CORNER

Scale: $\frac{3}{8}" = 1'-0"$

FOR OFFICE USE ONLY

APPROVAL	
<i>L.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES DATE: 11/17/97	
REVISIONS	
SHA	FHWA

FHWA APPROVAL
DATE:

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF STRUCTURES

SKewed ABUTMENT AND WING WALL
FOOTING INTERSECTION

STANDARD NO. BR-FD(0.14)-97-322

SHEET 2 OF 2